

REMARKS

Status of the Claims

- Claims 1-8 are pending in the Application after entry of this amendment.
- Claims 1-8 are rejected by Examiner.
- No amendments are made to the claims.

Claim Rejections Pursuant to 35 U.S.C. §103(a)

Claims 1-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over B. Carpenter, et al. Connection of IPv6 Domains via IPv4 Clouds (Network Working Group), hereafter referred to as "Carpenter", in view of US Patent Application Publication No. 2001/0040895 to Templin. Applicant respectfully traverses the rejection.

Below, Applicant respectfully reasserts arguments regarding the teachings of the prior art versus the pending claims and asserts additional arguments in support of the distinctiveness of the pending claims in view of the cited art.

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeals and Interferences has confirmed, a proper obviousness determination

requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." See *In re Wada and Murphy*, Appeal 2007-3733, citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

Independent Claim 1 provides a method for supporting a 6to4 tunneling protocol across a network address translation mechanism. The method includes receiving, from a first host located on a first network, an outbound IPv6 packet encapsulated into an IPv4 packet. The IPv4 packet comprises an IPv4 header with a private IPv4 source address of the first host. The outbound IPv6 packet comprises an IPv6 header with a 6to4 source address and the IPv6 header comprising an Interface ID value. The private IPv4 source address in the IPv4 header is translated into a public IPv4 source address. The translated packet is transmitted over an IPv4 network to a remote host. The method further comprises storing an association of the private IPv4 source address and the Interface ID value of the 6to4 source address for opposite address translation of inbound packets returned by the remote host. For the reasons presented below, it is respectfully submitted that Carpenter alone or in combination with Templin, fail to teach or suggest each feature of the present claimed arrangement.

Carpenter describes, in Section 5.1, page 9, that "[w]hen an outgoing packet reaches the 6to4 router, it is encapsulated as defined in Section 3, according to the additional sending rule defined in Section 5.3. Incoming packets are decapsulated according to the additional decapsulation rule defined in Section 5.3." In Section 5.3 of Carpenter, decapsulation includes applying any security checks and removing the IPv4 header and submitting the packet to local IPv6 routing. However, the decapsulation rules described in

sections 5.1 and 5.3 (and elsewhere) of Carpenter fail to teach or suggest "storing an association of the private IPv4 source address and the Interface ID value of the 6to4 source address for opposite address translation of inbound packets returned by the remote host" as in the present claimed arrangement.

Further, the Office Action concedes that Carpenter fails to teach or suggest "storing an association of the private IPv4 source address and the Interface ID value of the 6to4 source address for opposite address translation of inbound packets returned by the remote host" as recited in claim 1. However, the Office Action asserts that Templin in paragraph 255, lines 1 – 6 discloses this feature. Applicant respectfully disagrees.

Templin describes a system facilitating IPv6-IPv4 compatibility wherein IPv6 islands are present in heterogeneous IPv4/IPv6 networks (see para. [0005]). Specifically, in paragraph [0225], Templin describes a compatibility address format. Therein, Templin states that "[t]o communicate across the subnet 10 with the heterogeneous IP infrastructure, the IP host 12 and the gateway 16 use an aggregatable, global, unicast addresses, hereinafter referred to as an "IPv6-IPv4 compatibility address." The IPv6-IPv4 compatibility address enables IPv6 nodes (1) to forward IPv6 packets across native IPv6 routing infrastructure or (2) to automatically tunnel IPv6 packets over IPv4 routing infrastructure without requiring a pre-configured tunnel state. In Templin, a routing node 14 with an IPv6-IPv4 compatibility address can serve as a router for nodes 18 with native IPv6 addresses (i.e. IPv6 addresses that are not IPv6-IPv4 compatibility addresses) connected to the same link. On behalf of such native IPv6 nodes, the IPv6-IPv4 routing node 14 can automatically tunnel messages across the IPv4 infrastructure of the subnet 10 to reach the gateway 16. The IPv6-IPv4 compatibility address described in Templin is not equivalent to a "6to4 source address" that is included in the IPv6 header in the present claimed arrangement. The present claimed method advantageously uses 6to4 source addresses to facilitate communication

between IPv6 sites or native IPv6 networks over an IPv4 network without explicit tunnel setup (Specification, page 2, lines 18 – 22). Templin fails to teach or suggest the use of 6to4 source addresses and instead uses a compatibility address format that is not equivalent to the present claimed 6to4 source addresses included within the IPv6 header in an outbound IPv6 packet.

Additionally, in paragraph [0251], Templin describes their mechanism for initiating a reverse network translation. Specifically, Templin describes transforming the IPv6-IPv4 compatibility address interface identifier 304 with an embedded IPv4 address of the sending node into an anonymous ID for interdomain routing outside the subnet 10. Thus, the translation performed by Templin is done to “enforce policy of not exposing internal IPv4 addresses to outside of the subnet.” Templin, in paragraphs [0253] – [0255], further provides that the border gateway maintains a mapping identifier to the actual IPv4 address of the IPv4 node and that this identifier is not vulnerable to eavesdropping. However, this reverse network translation is described for globally unique IPv4 addresses. The globally unique IPv4 address of Templin are not private addresses as in the present claimed arrangement (see Templin, paragraphs [0242] and [0243] for the definition of globally unique IPv4 addresses). Moreover, in paragraphs [0258] – [0260], Templin provides that reverse network translation of non-globally unique IPv4 addresses is not necessary except for potentially protecting against eavesdropping on the non-globally unique addresses. Therefore, Templin merely stores an association of IPv4 source addresses that are not private address and an identifier that is not vulnerable to eavesdropping for reverse address translation of packets. The anti-eavesdropping identifier being associated with an IPv4 source address is not “storing an association of the private IPv4 source address and the **interface ID value of the 6to4 source address** for opposite address translation of inbound packets returned by the remote host” as in the present claimed arrangement. Templin fails to teach or suggest 6to4 addresses or an interface ID for a 6to4 address as in the present claimed method.

Furthermore, the present claimed arrangement addresses the problem of enabling opposite translation of inbound packets and supporting bidirectional communication in the context of X/T NAT as indicated on page 1 of the present application. This is neither addressed nor suggested by either Carpenter or Templin. As discussed above, Templin is concerned with not exposing internal IPv4 addresses to the outside.

The Office Action asserts it would be obvious to combine the features of Templin with the system of Carpenter to allow devices on an IPv6 network to send packets to and receive packets from devices on an IPv4 network. Applicant respectfully disagrees.

Applicant respectfully submits that the system described by Templin is structurally and functionally incompatible with the system described by Carpenter and thus could not be readily combined to produce an operative system without frustrating the functionality of the individual systems. Modifying Carpenter with Templin as suggested by the Office Action would render Carpenter unsatisfactory for its intended purpose because Carpenter would be rendered inoperable or mis-purposed by the features of Templin.

MPEP 2143.01 Part V indicates that, in an obviousness rejection, "The proposed modification cannot render the prior art unsatisfactory for its intended purpose" because such a result would indicate that there is no suggestion or motivation to make the proposed modification by the combination of references. Specifically, Templin provides that IPv4 addresses within a subnet are private and are only transmitted in their current private form or, alternatively, replaced by an identifier that is not vulnerable to eavesdropping (see Templin, para. [0260]). This is in direct contrast with Carpenter which describes any private IPv4 address is replaced by a public IPv4 address in the IPv4 header prior to transmission of that packet. Thus, one of skill in the art would recognize that

Templin teaches away from a combination with Carpenter because Templin fails to replace a private IPv4 source address with a public IPv4 source address and instead inserts an identifier to mask the private IPv4 address. Transmitting either the private IPv4 source address or an identifier for that source address as in Templin is not compatible with replacing a private IPv4 source address with a public IPv4 source address as required by Carpenter. Therefore, one skilled in the art would not seek to combine these two systems by modifying Carpenter and move away from its teachings by using the interface ID of a 6to4 address as an identifier as taught by Templin.

Additionally, the modification of Carpenter with Templin as proposed by the Office Action would change the principle of operation of Carpenter. Such a combination of prior art references is prohibited under MPEP 2143.01 Part VI which states that "the proposed modification cannot change the principle of operation of a reference". MPEP 2143.01 Part VI explains that the result of such a combination is not sufficient to render the pending claims *prima facie* obvious. Specifically, Carpenter replaces a private IPv4 address with a public IPv4 address prior to transmission of a packet. Contrary to this, Templin is concerned with not exposing internal IPv4 addresses to the outside. Thus, modifying Carpenter with Templin would change the principle of operation of Carpenter as these references are concerned with two different objectives and solve these objectives in two different methods using different principles and results. Specifically, Carpenter replaces private addresses with public addresses and Templin prevents exposure of internal addresses to the outside.

The present office Action states that the combination of Carpenter and Templin is compatible because the Office Action uses Templin to show a single feature that would be obvious to combine with Carpenter. Applicant respectfully disagrees.

MPEP 2141.02 VI states that Prior Art must be considered in its entirety, including disclosures that teach away from the claims. This section of the MPEP cites *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984) which states that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. When considered in their entirety, Carpenter and Templin transmit packets having different IPv4 addresses. Using a reference (such as Templin) to show a single feature as in the present Office Action is contrary to MPEP 2141.02 VI which requires prior art references to be considered in their entirety. When Carpenter and Templin are considered in their entirety, they are not combinable for the reasons discussed above.

Applicant respectfully submits that even if one were to combine the system of Templin with the system of Carpenter, the resulting system would neither teach nor suggest the features of the present claimed arrangement. The combination of Templin with Carpenter fails to enable opposite translation of inbound packets and support bidirectional communication in an X/Y NAT as stated on page 1 of the present specification. Specifically, Carpenter (with Templin) fails to teach or suggest "storing an association of the private IPv4 source address and the Interface ID value of the 6to4 source address for opposite address translation of inbound packets returned by the remote host" as recited in the claimed arrangement. Rather, the combined system would merely store an IPv4 source address and an identifier associated with that address that is not vulnerable to eavesdropping. Templin fails to teach or suggest the use of 6to4 addresses in any manner and thus cannot store the Interface ID value of the 6to4 source address. Furthermore, as acknowledged in the Office Action, Carpenter fails to teach or suggest the present claimed feature. Therefore, the combination of Templin with Carpenter fails to teach or suggest "storing an association of the private IPv4 source address and the Interface ID value of the 6to4 source address for opposite address translation

of inbound packets returned by the remote host" as recited in claim 1. Consequently, reconsideration and withdrawal of the rejection of claim 1 is respectfully requested.

Claims 2 – 6 are dependent on claim 1 and are considered patentable for the reasons presented above with respect to claim 1 per MPEP §2143.03. Therefore, it is respectfully submitted that the combination of Carpenter and Templin fail to teach or suggest the features of claims 2 – 6. Consequently, reconsideration and withdrawal of the rejection of claims 2 – 6 is respectfully submitted.

Independent claim 7 includes similar features as those described above with respect to claim 1. Therefore, Applicant respectfully submits that independent claim 7 is patentable for the reasons presented above with respect to claim 1. Specifically, the combination of Carpenter with Templin fails to teach or suggest "an application for storing, for each outbound packet received from a host of an IPv6 network, the private IPv4 addresses and an Interface ID value included in a 6to4 source address of a host; and for updating a 6to4 destination address of an inbound packet with a stored private IPv4 address having same Interface ID as the 6to4 destination address" as recited in claim 7. Therefore, reconsideration and withdrawal of the rejection of claim 7 is respectfully requested.

Claim 8 is dependent on claim 7 and is considered patentable for the reasons presented above with respect to claim 7 per MPEP §2143.03. Therefore, it is respectfully submitted that the combination of Carpenter with Templin fails to teach or suggest the features of claim 8. Consequently, reconsideration and withdrawal of the rejection of claim 8 is respectfully submitted.

In view of the above remarks, it is respectfully submitted that the Office Action fails to make a prima facie case that the present claimed arrangement of elements and claims is obvious over Carpenter alone or in combination with Templin. Therefore, as the combination fails to teach or suggest each feature claimed in claims 1 - 8, it is respectfully submitted that this rejection is overcome and should be reconsidered and withdrawn.

Conclusion

Applicant respectfully submits that the pending claims patentably define over the cited art and respectfully requests continued examination, reconsideration, and withdrawal of the 35 U.S.C. §103 rejections of the pending claims.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration for a Notice of Allowance is respectfully requested.

The Examiner is authorized to charge Deposit Account No. 07-0832 for fees associated with this submittal.

Respectfully submitted,
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